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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,266	03/31/2004	Hung-Ming Chien	58268.00356	5386
32294 7590 05/17/2007 SQUIRE, SANDERS & DEMPSEY L.L.P. 14TH FLOOR 8000 TOWERS CRESCENT TYSONS CORNER, VA 22182			EXAMINER LE, NHAN T	
			ART UNIT 2618	PAPER NUMBER
			MAIL DATE 05/17/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/813,266	Applicant(s) CHIEN, HUNG-MING	
	Examiner Nhan T. Le	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-13, 15-26 is/are rejected.
- 7) ☒ Claim(s) 5 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, 6-10, 13, 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Latham, II (US 4,636,748) in view of Ming et al (US 6,819,187).

As to claims 1, 18, 23, 26, Latham teaches a charge pump circuit to supply current to a controlled oscillating circuit (see fig. 2, col. 3, lines 35-63) the charge pump circuit comprising: a first switch comprising a first state, said first switch coupled to a gate of an output diode (see fig. 2, numbers 11, 12, col. 3, lines 35-63). Xx fails to teach a second switch comprising a second state opposite from said first state, the second switch coupled to a source of the output diode, wherein the second switch provides a charge up current to the output diode when the second state comprises an ON state. Ming teaches a charge pump circuit in which a swing generator comprising the first and second switches connected together in a diode configuration (see col. 7, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ming into the system of Latham in order to generate the drive signals to control the charge pump core.

As to claims 2, 3, the combination of Latham and Ming teaches wherein the first switch comprises a diode having a first semiconductor material (see Latham fig. 3, number 107, col. 3, lines 66-67, col. 4, lines 1-27) and the second switch comprises a diode having a second semiconductor material (see fig. 3, number 108, col. 3, lines 66-67, col. 4, lines 1-27).

As to claim 4, the combination of Latham and Ming teaches wherein the first switch is coupled to a capacitance (see Latham fig. 2, number 3, col. 3, lines 35-63).

As to claim 6, the combination of Latham and Ming teaches wherein the first switch disconnects the gate of the output diode when said first state comprises an OFF state (see Latham col. 4, lines 28-44).

As to claims 7, 8, the combination of Latham and Ming teaches wherein the first switch comprises an n-channel metal oxide semiconductor and wherein the second switch comprises a p-channel metal oxide semiconductor (see Latham col. 2, lines 19-28).

As to claim 9, Latham teaches a circuit, comprising: a controlled oscillator controlled by an output signal having an offset current (see fig. 2, number 1, col. 3, lines 35-63); a charge pump circuit to add a charge up current to the offset current in response to a signal from a phase/frequency detector (see fig. 2, col. 3, lines 35-63). Latham fails to teach wherein the charge pump circuit comprises a first switch having a first state and a second switch having a second state to add the charge up current to the offset current, in which the first state is opposite the second state; and an output diode coupled to the first and second switches to provide the charge up current to the

offset current. Ming teaches a charge pump circuit in which a swing generator comprising the first and second switches connected together in a diode configuration (see col. 7, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ming into the system of Latham in order to generate the drive signals to control the charge pump core

As to claim 10, the combination of Latham and Ming teaches comprising a low pass filter coupled between the controlled oscillator and the charge pump circuit (see Latham col. 1, lines 36-54).

As to claim 13, the combination of Latham and Ming teaches wherein the charge pump circuit includes a time constant applied by the first switch (see Latham col. 4, lines 2-20).

As to claims 15-17, the combination of Latham and Ming teaches wherein the output diode comprises a p-channel metal oxide semiconductor, wherein a gate of the output diode is coupled to the first switch and wherein a source of the output diode is coupled to the second switch (see Latham fig. 3, col. 4, lines 20-44).

As to claims 19, 20, the combination of Latham and Ming teaches wherein the source switch comprises a p-channel metal oxide semiconductor and wherein the gate switch comprises an n-channel metal oxide semiconductor (see Latham col. 4, lines 20-44).

As to claims 21, 22, the combination of Latham and Ming teaches wherein the source switch comprises a state and the gate switch comprises another state opposite of the state of the source switch (see Latham col. 2, lines 55-67, col. 3, lines 1-21).

As to claim 24, the combination of Latham and Ming teaches comprising outputting an output current from the output diode, wherein the output current comprises an offset current having the charge up current (see Latham col. 4, lines 1-20).

AS to claim 25, the combination of Latham and Ming teaches further comprising generating the charge up current in response to a signal received at a charge pump circuit (see Latham col. 4, 1-20).

2. Claims 11, 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Latham, II (US 4,636,748)) in view of Ming et al (US 6,819,187) further in view of Ryu (US 6,430,244).

As to claims 11, 12, the combination of Latham and Ming fails to teach comprising a multi-modulus divider coupled to the phase/frequency detector and wherein the multi-modulus divider outputs a feedback signal. Ryu teaches a divider coupled to the phase/frequency detector and wherein the multi-modulus divider outputs a feedback signal (see fig. 3, numbers 500, 107, col. 3, lines 13-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ryu into the system of Latham and Ming in order to synchronize the input and feedback signals (see suggested by Ryu col. 3, lines 13-44).

Allowable Subject Matter

3. Claims 5, 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 5, the applied reference fails to teach wherein the capacitance holds

a bias voltage when said second switch comprises the ON state as cited in the claim.

As to claim 14, the applied reference fails to teach wherein a period for the time constant for the first switch is greater than a period for the ON state for the second switch as cited in the claim.

Response to Arguments

4. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gehrke et al (US 5,623,523) teaches method and apparatus for increasing voltage in a charge pump used in a phase lock loop.

Maldonado (US 20030143) teaches multiple bandwidth phase lock filters for multimode radios.

Stortz (US 6,806,759) teaches tri-state charge pump.

Kim (US 6,140,881) teaches display apparatus with circuit for controlling the input voltage of PLL according to display mode and method.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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